SCDM 2003–Nothing Ever Stays the Same For Very Long

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What's SCDM?

- SCDM is the Superfund Chemical Data Matrix
- It Contains HRS Factor Values and Benchmarks for Hazardous Substances and Pollutants and Contaminants Used in HRS Scoring
  - Human and Environmental Toxicity, Persistence, Ground Water and Air Mobility, Aquatic Food Chain and Environmental Bioaccumulation
  - Health-based and Aquatic Environmental Benchmarks Based on Cancer Slope Factors, Non–Cancer Effects (RfDs), and other Media-specific EPA Criteria and Standards
- It Was Developed Based on Procedures in the HRS and Uses EPA Databases, EPA Risk Exposure Scenarios, and Standard and Peer Reviewed References as Sources of Input
- SCDM is **Not** Part of the HRS; It is **Not** Subject to Rulemaking

What's Up Doc?

- All Values in the Superfund Chemical Data Matrix have been Updated Based on Information Available in December 2002
  - This is the first update since 1996
- Many Issues had to be Addressed due to Revisions in:
  - how EPA identifies risk levels associated with specific substances
  - how Ambient Water Quality Criteria are presented
  - termination and changes in some EPA databases and references used to assign SCDM values, introduction of others
  - proposed baseline risk exposure scenarios
- Some Future Revisions to Methodology may be Addressed in the Federal Register

So What Has Changed?

- How IRIS Presents Risk Information When Substances are Updated
- Ambient Water Quality Criteria
- New Databases and References Used to Determine the Factor Values
- Information on Specific Substances has Changed or Been Removed from Databases and References
- List of Substances in SCDM Has Changed

Why Do We Care About IRIS

- The Integrated Risk Information System (IRIS) is prepared and maintained by EPA
- IRIS is an Electronic Database containing Information on Human Health Effects that May Result from Exposure to Various Chemicals in the Environment
- IRIS is the Main Source for SCDM for Cancer Slope Factors and RfDs used to Assign Human Toxicity and Several Benchmarks

What About IRIS Has Changed?

- HRS Calls for Human Toxicity and Benchmarks to be Set Based on the One in A Million Risk Level
- For Substances being updated, IRIS No Longer presents Only a Risk Factor (Cancer Slope or RfD) associated with a One in a Million Risk Level
- IRIS Now Presents A Range of Risks Associated with Various Exposure Scenarios

What About AWQCs Have Changed?

- AWQCs For Aquatic Life Are Used to Assign Ecosystem Toxicity and Ecosystem Benchmarks
- AWQC Previously Presented Acute and Chronic Levels, Now Contains CMC (Criteria Maximum Concentration) and CCC (Criterion Continuous Concentration)
- AWQC for Most Metals are Now Specifically Based on Dissolved Concentrations

What About AWQCs Have Changed? (continued)

- AWQC For Most Metals Must be Adjusted to Reflect the Hardness of the Water Body
- These Metals Criteria include:

  arsenic, cadmium, chromium, copper, lead, mercury nickel, selenium, silver, zinc
- Ammonia Benchmark is Now pH-Specific
- Formulas for Adjusting the Metal Criteria For Hardness and For pH Are Found in: “National Recommended Water Quality Criteria: 2002” (Available on EPA Website)

What About New References and Databases?

- SCDM uses Information from Several Sources (References and Databases) to Assign Factor Values
- For Most Factor Values, EPA has established a Hierarchy of Sources
- Besides IRIS Changes, HEAST has been Updated and Revised, ATSDR now has a Toxicity Profile Database, EPA's AQUIRE Has Been Updated, Revised, and Folded into ECOTOX, and Most Physical Chemical Properties Are Now Available from EPA Databases, and New Editions of Prior References

What Substance's Factor Values have Changed?

- Quite a Few Changes in Input Data Overall; **Not** that Many that Change Factor Values
- Very Few Changes in the 20 Substances Most Commonly Used in Scoring:

  Antimony, Arsenic, Barium, Benz(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Beryllium, Cadmium, Chromium, DDE, DDT, Dibenz(a,h)anthracene, Dieldrin, Lead, Manganese, Mercury, Nickel, PCBs, TCE, TCA, Vinyl Chloride

- Bioaccumulation Values Probably are the Most Frequently Changed; Then Human Toxicity

Which Benchmarks have Changed?

- Quite a Few Changes in Benchmarks
- Several Risk Based Benchmarks Have Been Revised and More are Under Review
- All AWQC Benchmarks for Metals Have Changed
- SCDM Lists the AWQC Benchmarks Based on a Hardness of 100 - If Actually Going to Establish Level I Contamination, Determine the Site-Specific Benchmark

What Does The Future Hold?

- Hold onto Your Hats
- EPA is Updating IRIS Quarterly, and the Profiles of Most Commonly Found Substances at Superfund Sites Are Being Revised
- EPA is Considering Changing the Cancer Weight of Evidence Factors Used Extensively in Determining Human Toxicity
- The Baseline Risk Exposure Scenarios Used to Establish Benchmarks Are Under Revision

When Will the 2003 SCDM be Available?

- The Updated Draft SCDM Values Are Undergoing Review
- HQ is Planning to Check the Proposed September Update Site Scorings to Ensure That No Site Scores Will Be in Jeopardy
- 2003 SCDM is Scheduled to be Released to Regions for Use in FY 2004
- SUPERScreen SCDM Values Will Be Updated
- Various Procedures Are Being Considered to Communicate Changes In SCDM Values on a Timely Basis